CLAIMS

What Is Claimed Is:

1. A rotary cutting tool having a shank that extends to a cutting region, the cutting region terminates in a cutting tip, a flute formed within the cutting region begins at the cutting tip and terminates at a distal location towards the shank, and a cutting edge formed along an outer border of the flute, wherein said flute comprises:

a) a first helical-pitch proximate the cutting tip and

b) a second helical-pitch proximate the terminating distal location with a gradual transition of said flute from said first helical-pitch to said second helical-pitch.

2. A rotary cutting tool according to Claim 1, wherein said first helical-pitch is about 10° to about 60°, said second helical-pitch is from about 60° to about 10° and said first and said second helical-pitches do not equal one another.

3. A rotary cutting tool according to Claim 1, wherein said first helical-pitch is about 30° to about 40°, said second helical-pitch is from about 40° to about 30° and said first and said second helical-pitches do not equal one another.

4. A rotary cutting tool having a shank that extends to a cutting region, the cutting region terminates in a cutting tip, a plurality of flutes formed within the cutting region with each flute beginning at the cutting tip and terminating at a distal location towards the shank, and a cutting edge formed along an outer border of each flute, wherein each said flute comprises:

a) a first helical-pitch proximate the cutting tip and

b) a second helical-pitch proximate the terminating distal location with a gradual transition of said flute from said first helical-pitch to said second helical-pitch.

5. A rotary cutting tool according to Claim 4, wherein each flute has said first helical-pitch is about 10° to about 60°, said second helical-pitch is from about 60° to about 10° and said first and said second helical-pitches do not equal one another.

6. A rotary cutting tool according to Claim 4, wherein each said flute has said first helical-pitch is about 30° to about 40°, said second helical-pitch is from about 40° to about 30° and said first and said second helical-pitches do not equal one another.

7. A rotary cutting tool according to Claim 4, wherein each adjacent flute has said first and said second helical-pitches reversed with said first helical-pitch about 10° to about 60°, said second helical-pitch from about 60° to about 10° and said first and said second helical-pitches do not equal one another.

8. A rotary cutting tool according to Claim 4, wherein each adjacent flute has said first and said second helical-pitches reversed with said first helical-pitch about 30° to about 40°, said second helical-pitch from about 40° to about 30° and said first and said second helical-pitches do not equal one another.

9. A rotary cutting tool having a shank that extends to a cutting region, the cutting region terminates in a cutting tip, a plurality of paired flutes formed within the cutting region with each flute having a variable helical-pitch and beginning at the cutting tip and terminating at a distal location towards the shank, and a cutting edge formed along an outer border of each flute, wherein for each pair of flutes each said flute within the pair has an identical variable helical-pitch and comprises:

a) a first helical-pitch proximate the cutting tip and

b) a second helical-pitch proximate the terminating distal location with a gradual transition of said flute from said first helical-pitch to said second helical-pitch.

10. A rotary cutting tool according to Claim 9, wherein each flute has said first helical-pitch from about 10° to about 60°, said second helical-pitch from about 60° to about 10° and said first and said second helical-pitches do not equal one another.

11. A rotary cutting tool according to Claim 9, wherein each said flute has said first helical-pitch about 30° to about 40°, said second helical-pitch from about 40° to about 30° and said first and said second helical-pitches do not equal one another.

12. A rotary cutting tool according to Claim 9, wherein each adjacent flute has said first and said second helical-pitches reversed with said first helical-pitch about 10° to about 60°, said second helical-pitch from about 60° to about 10° and said first and said second helical-pitches do not equal one another.

13. A rotary cutting tool according to Claim 9, wherein each adjacent flute has said first and said second helical-pitches reversed with said first helical-pitch about 30° to about 40°, said second helical-pitch from about 40° to about 30° and said first and said second helical-pitches do not equal one another.

14. A rotary cutting tool according to Claim 9, wherein each said flute within a pair of flutes is aligned directly across from one another and each pair of flutes is off-set from any other pair of flutes by between about 1° to about 10°.